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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/812,795

Applicant(s)

SAITO ET AL.

Examiner

Albert H. Cutler

Art Unit

2622

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 October 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2,5,7,8,10,12,14-16 and 19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2,5,7,8,10,12,14-16 and 19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 October 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This office action is responsive to communication filed on October 15, 2007. Claims 2, 5, 7, 8, 10, 12, 14-16 and 19 are pending in the application. Claims 1, 3, 4, 6, 9, 11, 13, 17, 18 and 20 were cancelled by Applicant.

Response to Arguments

2. Applicant's arguments filed October 15, 2007 have been fully considered but they are not persuasive.

3. Consider claims 2, 10, 16, 19, Applicant argues that Kim fails to teach a closed spaced formed by a circuit board, the cover member, and the optical filter. Applicant argues that the substrate of Kim cannot be considered a circuit board, and that Kim requires an additional element to form the substantially closed space.

4. The Examiner respectfully disagrees. As the substrate(1, figure 2) of Kim enables the mounting and connection of circuit elements 2 and 3, the substrate clearly satisfies the definition of a circuit board. Even without considering the ISP package(3) as part of the circuit board, the cover member(5), optical filter(4) and circuit board(1) still ensure that the image pickup device(2) is disposed in a "substantially" closed space. Furthermore, Kim teaches in that is well known in the art(see figure 1) to enclose an image sensor(102) in a substantially closed space formed by a circuit board(101), optical filter(103), and cover member(105), paragraph 0009.

5. Consider claims 2, 10, 16 and 19, Applicant argues that Burnham as understood teaches away from the presently claimed invention, in that Burnham is restricting the flow of air out of the air passage, while the present invention has a technique for

allowing heat to escape its closed in space. The inclusion of such a flapper valve of Burnham in the presently claimed invention would, of course, inhibit the escape of heat. Applicant further argues, Burnham does not recognize the problems identified and resolved in the present invention. As previously stated, the present invention is concerned with protecting the solid image pickup device from dust during the manufacturing process. Furthermore, Applicant argues none of the prior art references uses this technique to keep away solder.

6. The Examiner respectfully disagrees. As per the current claim language, Burnham teaches that a cover member(interior wall, 56) contains an air hole("bore or opening", 54, figure 1, column 3, line 18 through column 4, line 20). Burnham teaches that his air hole purges the camera of dust by equalizing the air pressure(column 3, lines 38-59). As claim 2 simply calls for an air hole that makes, "the substantially closed space in communication with the outside", Burnham clearly satisfies this limitation.

7. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., permitting air flow out of the air passage, allowing heat to escape, protecting the image pickup device from dust, and keeping away solder) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

8. Consider claims 2 and 14, Applicant argues that the presently claimed invention uses the cutouts in order to easily form the ventilation channel without the extra work of

processing (forming grooves, etc.) the lens holder. The cutouts 31a and 32a of the present invention are formed in the lenses.

9. The Examiner respectfully disagrees. The claims do not refer to a "cutout in the lens", but rather a "cutout of the lens". The current claim language is comparable to claiming something such as a holder of a lens. The currently claimed of does not limit the cutout to having to be in the lens. Therefore, Shinohara does indeed teach a cutout of(i.e. indicating a derivation or source) the lens. The cutout is where the lens is situated(see figure 10). A ventilation channel(see arrow) is formed between the wall(6) of the cutout and the lens holder(9).

10. Consider claim 10, Applicant argues that neither Kim nor Akimoto teach or suggest that the cover member is arranged to be in contact with the portion of the grounding terminal extending to the upper surface of the circuit board.

11. The Examiner respectfully disagrees. Akimoto teaches a plurality of terminals(11), which terminals are comprised of three portions(11a, 11b, 11c), paragraph 19. Akimoto further teaches that one of the terminals(11) is used as a grounding terminal(paragraph 0028). Akimoto labels this terminal(11a) in figures 3 and 4. Akimoto clearly shows in figure 5 that a portion of the grounding terminal(11c) extends to the upper surface of the circuit board. This detail, most likely due to its miniscule nature, was not shown in figure 2, but rather only in the close-up view of figure 5. One can clearly see in figure 1 that cover member(34) rests on an outer portion of the upper face of the circuit board(1), and that in figure 5, a portion(11c) of the grounding terminal(11) clearly extends over this portion. Therefore, the cover member

is in fact arranged to be in contact with the portion of the grounding terminal extending to the upper surface of the circuit board.

12. Applicant argues the obviousness of combining Kim and Burnham.

13. The Examiner upholds that the combination would have been obvious to a person having ordinary skill in the art at the time of the invention. Burnham outlines the benefits of such a combination in column 3, lines 38-59, which benefits includes keeping dust out of the camera module, all the while reducing the pressure in the camera due to the free flow air passage, and thus purging the camera by blowing out any dust that may have collected.

14. Therefore, the Examiner is maintaining the rejection.

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

17. Claims 2 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al.(US 2003/0223008) in view of Burnham(US 5,233,379) and Shinohara et al.(US 6,738,570).

18. The response to Applicants arguments, as outlined above by the Examiner, is hereby incorporated into the rejection of following claims by reference.

Consider claim 2, Kim et al. teach:

A compact camera module(figure 2) comprising a lens unit(8) including a lens(7) and a lens holder(8) holding the lens therein and an image pickup unit("image sensor module", paragraph 0024) attached to the lens unit(see figure 2), wherein

the image pickup unit comprises:

a circuit board(1 and 3);

an image pickup device(2) on the circuit board(1 and 3);

a cover member(5) arranged on the circuit board(1 and 3) to cover the image pickup device(2); and

an optical filter(4) arranged with respect to the cover member(5) to face the image pickup device(2, see figure 2), wherein

the image pickup device(2) is disposed in a substantially closed space formed by the circuit board(1 and 3), the cover member(5), and the optical filter(4, see figure 2).

However, Kim et al. do not explicitly teach that the cover member contains an air hole, or that the lens unit includes a ventilation channel.

Burnham is similar to Kim et al. in that Burnham teaches of a camera module (figure 1) with a lens (46), a lens holder (36), and an image capturing surface (22) opposed to the position of the lens (46, see figure 1).

However, in addition to the teachings of Kim et al., Burnham teaches that a cover member (interior wall, 56) contains an air hole making the substantially closed space in communication with the outside ("bore or opening", 54, figure 1, column 3, line 18 through column 4, line 20).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to include an air hole as taught by Burnham in the cover member taught by Kim et al. for the benefit of creating a free flow air passage in the camera module which reduces pressure and actively purges the module of dust (Burnham column 3, lines 38-59).

However, the combination of Kim et al. and Burnham does not explicitly teach that the lens unit includes a ventilation channel.

Shinohara et al. is similar to Kim et al. in that Shinohara et al. teach of a lens unit (figure 10) containing at least one lens (L1) and a lens holder (9, 9e).

However, in addition to the combination of Kim et al. and Burnham, Shinohara et al. teach that the lens unit includes a ventilation channel (See the arrows of figure 10, column 7, lines 1-56). Shinohara et al. also teach that the ventilation channel (see the arrows on figure 10) is formed between a wall of a cutout of the lens (L1) and the lens holder (The ventilation channel denoted by the arrows on figure 10 is between a cutout

of the lens(6, the cutout holds the plurality of lenses, i.e. it is a cutout of the lens) and the lens holder(9, 9e). See figure 10.).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to include a ventilation channel as taught by Shinohara et al. in the lens unit taught by the combination of Kim et al. and Burnham for the benefit of properly ventilating air in and out of the lens unit during the screwing of the lens unit into the image pickup unit so that the pressure in the lens unit is maintained substantially equal with the external pressure, enabling the lens unit to be smoothly moved(Shinohara et al., column 1, lines 19-24).

Note: When an alternate configuration of the air hole and cover member, as shown in figure 4 of Burnham is used, the air hole is provided between cover member(12''') and lens holder(36). Because an air hole containing filters 90 and 92 is provided on the inside, as well as the outside of the lens holder(36), an air hole taught by Burnham will be in communication with the ventilation channel taught by Shinohara et al. when the fourth embodiment taught by Burnham is used. See Burnham, column 4, line 55 through column 5, line 11.

Consider claim 5, and as applied to claim 2 above, Kim et al. do not explicitly teach of an air filter. Burnham teaches of an air filter(60, 90, 92) which is disposed in the air hole(see figures 1-4). However, the combination of Kim et al. and Burnham does not explicitly teach that the ventilation channel has an air filter disposed therein.

Shinohara et al. teaches that the ventilation channel has an air filter disposed therein(column 7, lines 20-30). Shinohara et al. teach that the filter is used to keep out dust and water(column 7, lines 1-6, lines 38-56).

19. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al.(US 2003/0223008) in view of Burnham(US 5,233,379) and Shinohara et al.(US 6,738,570) as applied to claim 2 above, and further in view of Akimoto et al.(US 2002/0167605).

20. The response to Applicants arguments, as outlined above by the Examiner, is hereby incorporated into the rejection of following claim by reference.

Consider claim 7, and as applied to claim 2 above, the combination of Kim et al., Burnham, and Shinohara et al. does not explicitly teach that the image pickup unit is asymmetric with respect to a central line.

Akimoto et al. is similar to Kim et al. in that Akimoto et al. teach of an image pickup-device(2, figure 2) on a circuit board(1), and that a lens unit(3) is attached to the imaging unit(see figure 2).

However, in addition to the teachings of Kim et al., Burnham, and Shinohara et al., Akimoto et al. teach that the image pickup unit is asymmetric with respect to a central line(see figure 2).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to make the image pickup unit taught by the combination of

Kim et al., Burnham, and Shinohara et al. asymmetric with respect to a central line as taught by Akimoto et al. for the benefit of being able to comply with predetermined positions on a wiring board, and position other circuit elements within the interior of the image pickup unit without worrying about the space constraints of having the imaging device perfectly centered(Akimoto et al., paragraph 0027).

21. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al.(US 2003/0223008) in view of Burnham(US 5,233,379) and Shinohara et al.(US 6,738,570) as applied to claim 2 above, and further in view of Akimoto et al.(US 2002/0191103).

22. The response to Applicants arguments, as outlined above by the Examiner, is hereby incorporated into the rejection of following claim by reference.

Consider claim 8, and as applied to claim 2 above, the combination of Kim et al., Burnham, and Shinohara et al. does not explicitly teach a grounding terminal is formed on a side surface of the circuit board, said grounding terminal including a portion extending to an upper surface of the circuit board; and the cover member is arranged to be in contact with the portion of the grounding terminal extending to the upper surface of the circuit board.

Akimoto et al. is similar to Kim et al. in that Akimoto et al. teach of an image module(figure 2) which includes a lens(32), a circuit board(1), an image sensor(2), a cover member(34), and an optical filter(35). Akimoto et al. also similarly teach that the

image sensor is enclosed by the circuit board(1), cover member(34), and optical filter(35, see figure 2).

However, in addition to the teachings of the combination of Kim et al., Burnham, and Shinohara et al., Akimoto et al. teach:

a grounding terminal(11a, figures 2-5) is formed on a side surface of the circuit board(1), said grounding terminal(11a) including a portion extending to an upper surface of the circuit board(see figure 5, the ground terminal(11a) extends from the lower to the upper surface of the circuit board(1).); and

the cover member is arranged to be in contact with the portion of the grounding terminal(11a) extending to the upper surface of the circuit board(1, see figures 2 and 5. The cover member(36) is in contact with the upper surface of the circuit board where the grounding terminal extends.).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to include a grounding contact member as taught by Akimoto et al., in the circuit board taught by the combination of Kim et al., Burnham, and Shinohara et al. for the benefit of preventing charge buildup and providing assistance in the alignment of the camera module by indicating the correct orientation to a user(Akimoto et al., paragraphs 0028 and 0029).

23. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al.(US 2003/0223008) in view of Burnham(US 5,233,379) and Akimoto et al.(US 2002/0191103).

24. The response to Applicants arguments, as outlined above by the Examiner, is hereby incorporated into the rejection of following claim by reference.

Consider claim 10, Kim et al. teach:

An image pickup unit("image sensor module", paragraph 0024) for use in conjunction with a lens unit(8) in a compact camera module(figure 2), comprising:

a circuit board(1 and 3);

an image pickup device(2) on the circuit board(1 and 3);

a cover member(5) arranged on the circuit board to cover the image pickup device(2, see figure 2); and

an optical filter(4) arranged with respect to the cover member(5) to face the image pickup device(see figure 2), wherein

the image pickup device(2) is disposed in a substantially closed space formed by the circuit board(1 and 3), the cover member(5), and the optical filter(4, see figure 2).

However, Kim et al. do not explicitly teach that the cover member contains an air hole to make the substantially closed space in communication with the outside.

Burnham is similar to Kim et al. in that Burnham teaches of a camera module(figure 1) with a lens(46), a lens holder(36), and an image capturing surface(22) opposed to the position of the lens(46, see figure 1).

However, in addition to the teachings of Kim et al., Burnham teaches that a cover member(interior wall, 56) contains an air hole making the substantially closed space in

communication with the outside("bore or opening", 54, figure 1, column 3, line 18 through column 4, line 20).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to include an air hole as taught by Burnham in the cover member taught by Kim et al. for the benefit of creating a free flow air passage in the camera module which reduces pressure and actively purges the module of dust(Burnham column 3, lines 38-59).

However, the combination of Kim et al. and Burnham does not explicitly teach a grounding terminal is formed on a side surface of the circuit board, said grounding terminal including a portion extending to an upper surface of the circuit board; and the cover member is arranged to be in contact with the portion of the grounding terminal extending to the upper surface of the circuit board.

Akimoto et al. is similar to Kim et al. in that Akimoto et al. teach of an image module(figure 2) which includes a lens(32), a circuit board(1), an image sensor(2), a cover member(34), and an optical filter(35). Akimoto et al. also similarly teach that the image sensor is enclosed by the circuit board(1), cover member(34), and optical filter(35, see figure 2).

However, in addition to the teachings of the combination of Kim et al. and Burnham, Akimoto et al. teach:

a grounding terminal(11a, figures 2-5) is formed on a side surface of the circuit board(1), said grounding terminal(11a) including a portion extending to an upper surface

of the circuit board(see figure 5, the ground terminal(11a) extends from the lower to the upper surface of the circuit board(1).); and

the cover member is arranged to be in contact with the portion of the grounding terminal(11a) extending to the upper surface of the circuit board(1, see figures 2 and 5. The cover member(36) is in contact with the upper surface of the circuit board where the grounding terminal extends.).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to include a grounding contact member as taught by Akimoto et al., in the circuit board taught by the combination of Kim et al. and Burnham for the benefit of preventing charge buildup and providing assistance in the alignment of the camera module by indicating the correct orientation to a user(Akimoto et al., paragraphs 0028 and 0029).

25. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al.(US 2003/0223008) in view of Burnham(US 5,233,379) and Akimoto et al.(US 2002/0191103, hereinafter referred to as Akimoto '103) as applied to claim 10 above, and further in view of Akimoto et al.(US 2002/0167605, hereinafter referred to as Akimoto '605).

26. The response to Applicants arguments, as outlined above by the Examiner, is hereby incorporated into the rejection of following claim by reference.

Consider claim 12, and as applied to claim 10 above, the combination of Kim et al., Burnham, and Akimoto '103. does not explicitly teach that the image pickup unit is asymmetric with respect to a central line.

Akimoto '605 is similar to Kim et al. in that Akimoto '605 teaches of an image pickup-device(2, figure 2) on a circuit board(1), and that a lens unit(3) is attached to the imaging unit(see figure 2).

However, in addition to the teachings of Kim et al., Burnham, and Akimoto '103, Akimoto '605 teaches that the image pickup unit is asymmetric with respect to a central line(see figure 2).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to make the image pickup unit taught by the combination of Kim et al., Burnham, and Akimoto '103 asymmetric with respect to a central line as taught by Akimoto '605 for the benefit of being able to comply with predetermined positions on a wiring board, and position other circuit elements within the interior of the image pickup unit without worrying about the space constraints of having the imaging device perfectly centered(Akimoto '605, paragraph 0027).

27. Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shinohara et al. in view of Takachi(US 2003/0137595).

28. The response to Applicants arguments, as outlined above by the Examiner, is hereby incorporated into the rejection of following claims by reference.

Consider claim 14, Shinohara et al. teach:

A lens unit (figure 10) for use in conjunction with an image pickup unit in a camera module (column 4, lines 16-28), comprising:

a lens (L1) having a cutout (6, the cutout holds the plurality of lenses, i.e. it is a cutout of the lens); and

a lens holder (9, 9e) that holds the lens therein (see figure 10), wherein a ventilation channel (see the arrows, figure 10) is formed between a wall of the cutout and the lens holder (The ventilation channel denoted by the arrows on figure 10 is between a cutout (6) of the lens (L1) and the lens holder (9, 9e). See figure 10.).

However, Shinohara et al. do not explicitly teach that the lens unit is used in conjunction with a compact camera module.

Takachi is similar to Shinohara et al. in that Takachi teaches of a lens unit (8b, figure 2) which includes a plurality of lenses (10 and 13), and which lens holder (8b) is detachable from an imaging device (paragraph 0029).

However, in addition to Shinohara et al., Takachi teaches that the lens unit is in a compact camera module (see figure 2).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to implement the lens unit with the ventilation channel taught by Shinohara et al. in a compact camera module as taught by Takachi because the reduction in size is much required nowadays, as camera modules are demanded which fit into smaller and smaller locations (Takachi, paragraph 0007).

Consider claim 15, and as applied to claim 14 above, Shinohara et al. further teach the ventilation channel has an air filter disposed therein(column 7, lines 20-30). Shinohara et al. teach that the filter is used to keep out dust and water(column 7, lines 1-6, lines 38-56).

29. Claims 16 and 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al.(US 2003/0223008) in view of Burnham(US 5,233,379).

30. The response to Applicants arguments, as outlined above by the Examiner, is hereby incorporated into rejection of the following claim by reference.

Consider claim 16, Kim et al. teach:

A method of producing a compact camera module(figure 2, paragraphs 0024-0028), comprising the steps of:

forming an image pickup unit("image sensor module", paragraph 0024) wherein an image pickup device(2) is disposed in a substantially closed space(See figure 2. A substantially closed space is formed by the circuit board(1 and 3), the cover member(5), and the optical filter(4).), wherein the step of forming the image pickup unit comprises the steps of:

installing an image pickup device(2) on a circuit board(1 and 3, paragraphs 0024 and 0025);

covering the image pickup device(2) with a cover member(5) to form the substantially closed substantially closed space(see figure 2, paragraph 0024); and arranging an optical filter(4) with respect to the cover member(5) to face the image pickup device(2, see figure 2, paragraph 0024);

wherein the cover member(5), optical filter(4), and circuit board(1 and 3) form a substantially closed space(see figure 2, Response to Arguments), and

attaching the image pickup unit to a lens unit(8, paragraph 0024).

However, Kim et al. do not explicitly teach that the cover member contains an air hole to make the substantially closed space in communication with the outside.

Burnham is similar to Kim et al. in that Burnham teaches of a camera module(figure 1) with a lens(46), a lens holder(36), and an image capturing surface(22) opposed to the position of the lens(46, see figure 1).

However, in addition to the teachings of Kim et al., Burnham teaches that a cover member(interior wall, 56) contains an air hole making the substantially closed space in communication with the outside("bore or opening", 54, figure 1, column 3, line 18 through column 4, line 20).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to include an air hole as taught by Burnham in the cover member taught by Kim et al. for the benefit of creating a free flow air passage in the camera module which reduces pressure and actively purges the module of dust(Burnham column 3, lines 38-59).

Consider claim 19, Kim et al. teach:

A method(paragraphs 0024-0028) of producing an image pickup unit("image sensor module", paragraph 0024) for use in conjunction with a lens unit(8) in a compact camera module(figure 2), the method comprising the steps of:

installing an image pickup device(2) on a circuit board(1 and 3, paragraphs 0024 and 0025);

covering the image pickup device(2) with a cover member(5) to dispose the image pickup device(2) in a substantially closed space(see figure 2, paragraph 0024);
and

arranging an optical filter(4) with respect to the cover member(5) to face the image pickup device(2, see figure 2, paragraph 0024);

wherein the cover member(5), optical filter(4), and circuit board(1 and 3) form a substantially closed space(see figure 2, Response to Arguments).

However, Kim et al. do not explicitly teach that the cover member contains an air hole to make the substantially closed space in communication with the outside.

Burnham is similar to Kim et al. in that Burnham teaches of a camera module(figure 1) with a lens(46), a lens holder(36), and an image capturing surface(22) opposed to the position of the lens(46, see figure 1).

However, in addition to the teachings of Kim et al., Burnham teaches that a cover member(interior wall, 56) contains an air hole making the substantially closed space in communication with the outside("bore or opening", 54, figure 1, column 3, line 18 through column 4, line 20).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to include an air hole as taught by Burnham in the cover member taught by Kim et al. for the benefit of creating a free flow air passage in the camera module which reduces pressure and actively purges the module of dust(Burnham column 3, lines 38-59).

Conclusion

31. Any objections made by the Examiner to the claims and drawings are hereby removed in view of Applicant's response.

32. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

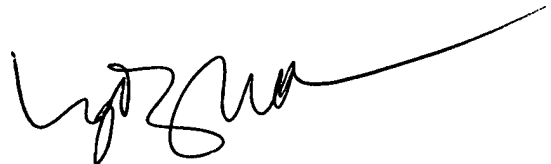
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Albert H. Cutler whose telephone number is (571)-270-1460. The examiner can normally be reached on Mon-Fri (7:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ngoc-Yen Vu can be reached on (571)-272-7320. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AC



NGOC-YEN VU
SUPERVISORY PATENT EXAMINER